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RESPONSE UNDER 37 CFR 1.116
EXPEDITED PROCEDURE

IN THE U.S. PATENT AND TRADEMARK OFFICE

January 22, 2004

Applicants: Yuji AKIMOTO et al

For: SINGLE-CRYSTAL FERRITE FINE POWDER

Serial No.: 09/900 769 Group: 1714

Confirmation No.: 7695

Filed: July 6, 2001 Examiner: Anthony

Atty. Docket No.: Komatsu Case 246

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR RECONSIDERATION

Sir:

In response to the Office Action dated October 22, 2003, Applicants respectfully request reconsideration.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on January 22, 2004.

Terryence F. Chapman

REMARKS

Claims 1, 3 and 5 have been rejected under 35 USC 102(b) as being anticipated by EP 0 394 020 or EP 0 481 670, both to Yamamoto et al, or Watanabe et al. Claims 1, 3 and 5 also have been rejected under 35 USC 103(a) as being unpatentable over Ota or Fuji et al or Yamazaki et al. Claims 1, 3 and 5 also have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting over Claims 9-12 of co-pending application Serial No. 10/158 570. Applicants respectfully traverse these grounds of rejection and urge reconsideration in light of the following comments.

As explained previously, the instant invention is directed to a ferrite fine powder having a main particle size of 0.3 to 30 microns and consisting of spherical single-crystal particles and which are typically used in applications where a high magnetic permeability, low coercive force and low loss are required, such as in cores of inductors, transformers and filters, and also as permanent magnetic materials and high-density magnetic recording materials.

As discussed in the present specification, a truly spherical, fine single-crystal ferrite powder having the claimed mean particle size of 0.3 to 30 microns and excellent magnetic properties has not been developed before the present invention. The spherical fine powders of the present invention have a single-crystal structure relatively unaffected by grain boundaries and impurities, do not aggregate and are highly dispersible and packable. This enables a dense, high-performance ferrite sintered body having excellent magnetic properties and mechanical strength to be obtained and, additionally, the ferrite powder of the present invention can be uniformly dispersed in a polymeric material to minimize variations in its properties throughout the polymeric material and enhancing the packing density. It is respectfully submitted that the presently claimed invention is

clearly patentably distinguishable over the prior art cited by the Examiner.

Both of the Yamamoto et al references disclose ferrite particles and ferrite resin composites used in bonded magnetic cores and a process for forming the ferrite particles and ferrite resin compositions. As stated by the Examiner, both of these references disclose spherical ferrite particles comprising uniform crystal grains of from 5 to 15 microns in average diameter and have an average particle diameter of from 20 to 150 microns and a magnetic permeability of not less than 25. However, the currently presented claims also require that the ferrite fine powder consists of spherical single-crystal particles. Nothing in the Yamamoto et al reference suggests that the particles disclosed there are single-crystals.

As is readily apparent from Figures 1-3 of the references discussed above, which show the structure of Yamamoto et al's ferrite particles, these ferrite particles are not single crystals. Figures 1-3 of the Yamamoto et al references clearly show that each ferrite particle having an average diameter of 5 to 15 microns or 20 to 150 microns is formed of plural final crystals and therefore are polycrystalline. Photographs of the polycrystalline particles of the Yamamoto et al references are to be compared with the single-crystal particles of the present invention shown in Figures 1, 2, 7, 8 and 12 of the present application. A comparison of the polycrystalline particles of the Yamamoto et al references with the single-crystal particles of the present invention clearly shows that the polycrystalline particles of Yamamoto et al are not the single-crystal particles required by the present claims.

Enclosed herewith for the Examiner's benefit is a copy of pages 1542 and 1832 of the McGraw-Hill Dictionary of Scientific and Technical Terms, Fifth Edition. As shown in the enclosed pages, the word "polycrystalline" pertains to a material composed of aggregates of individual crystals and is characterized by various oriented crystals. In contrast

thereto, single crystal means a crystal in which all parts have the same crystallographic orientation. Therefore, Applicants respectfully submit that it can be visually determined that the ferrite single-crystal particles of the present invention are not shown or suggested in the Yamamoto et al references.

The Watanabe et al reference discloses spherical grain-ferrite powder and a process and apparatus for the production thereof. This reference discloses that a slurry of ferrite-forming powder raw materials and alcohol is sprayed under an applied pressure through a spray nozzle into a high temperature atmosphere of between 700-1,500°C to cause a combustion of the sprayed alcohol and instantaneously produce spherical grain-ferrite powder. It is to be noted that in the claims and the examples disclosed in this reference, the actual spray temperature is from about 1,200°C to about 1,300°C.

Specifically speaking, in Example 1 of the Watanabe et al reference, finely powdered oxides of nickel, zinc and iron having an average grain size of one micron or less were suspended in methyl alcohol to form a slurry having a solids content of 45%. The slurry was sprayed through a jet nozzle under an applied pressure of 2 kg/cm^2 into a reaction vessel having an inside temperature in the range of from 1,200°C to 1,250°C. A series of reactions including granulation, ferrite-formation and sintering were carried out to form a powdered product of a nickel-zinc type ferrite composition having a saturation magnetization of 50 emu/g and a density of 5.0 g/cm^3. The grains making up the powder product were spherical and 80% of them were in the range of 30-200 microns. The scanning electron microscope photograph of the product grains is shown in Figure 4 of this reference.

The Watanabe et al process was arrived at in order to overcome the problems associated with prior art processes in which a step of granulation and drying of raw material and a step for sintering the dried product in a muffle furnace, a

rotary kiln or the like are separately carried out, as pointed out in the previously discussed Yamamoto et al references. According to the disclosure of Watanabe et al, the production process disclosed there is free from the following problems.

1) The number of separate steps required by the prior art process;

2) A prolonged sintering time of at least two hours in a muffle furnace or kiln; and

3) The adhesion of clinkers to the inner surface of the kiln.

The process of Watanabe et al is proposed to enable the production of spherical-grain ferrite powder directly from ferrite-forming raw materials. However, there is no disclosure in this reference as to whether the particles in Watanabe et al are single crystals or not.

According to investigations carried out by the present inventors, when particles are produced with different sizes at the same temperature, the formation of single-crystal particles become more difficult with an increase in particle size as is discussed in the present application. The Watanabe et al particles have a larger particle size than the presently claimed particle size and the heating temperatures of 1,200°C to 1,300°C required in Watanabe et al are much lower temperatures than the melting temperature of about 1,600°C of ferrites, as shown in the Yamamoto et al references. Therefore, it is considered from the Watanabe et al disclosure that the process disclosed there provides a ferrite powder made up of polycrystalline particles rather than a ferrite powder composed of single-crystal particles, although the magnifications on the scanning electromicroscope photographs shown in Figure 4 of Yamamoto et al are too low to visually determine whether or not the particles are single-crystals or polycrystalline particles. Moreover, since the Watanabe et al process is concerned with the conduction of granulation, ferrite-formation and sintering in one step under the above production conditions, the formation of single crystal

particles is not an intended result and, therefore, there is no suggestion of the formation of the presently claimed single-crystal particles.

Additionally, since the processes disclosed in the Yamamoto et al references and the Watanabe et al process are very similar in raw materials, composition, slurry concentration, and reaction temperature and shape of the resultant ferrite particles, it would be assumed by one of ordinary skill in the art that the powder of Watanabe et al is polycrystalline like that of the Yamamoto et al references. As such, it is respectfully submitted that the Watanabe et al reference, like the Yamamoto et al references, do not anticipate or present a showing of prima facie obviousness with respect to the presently claimed invention.

The Ota and Fuji et al references both disclose toner compositions in which spherical ferrite particles are used as magnetic carriers. However, neither of these references disclose that the ferrite particles are single-crystals, suggest a process by which single-crystal particles can be formed or disclose any advantage to the production of these type of crystals. As such, it is respectfully submitted that the presently claimed invention clearly is patentably distinguishable over these references.

The Yamazaki et al reference discloses magnetic spherical particles made of a ferrite having an average particle diameter within a range of from 30 to 200 microns, preferably 60 to 100 microns. Like the previously discussed references, this reference has no disclosure with respect to the crystallinity of the ferrite particles used there and, as such, it cannot be merely assumed that single-crystal spherical ferrite particles are produced.

Neither of the Ota, Fuji et al or Yamazaki et al references disclose a single crystal ferrite particle as required by the present claims. None of these references have any suggestion with respect to the relationship between the crystallinity of ferrite particles and properties required by

the present invention and, as such, there is no motivation to form single crystal ferrite particles having the claimed mean particle size which are desirable for the intended use of the present invention and not those discussed in the references. These references also have no teaching with respect to the production process of the ferrite particles produced there and, as discussed in the present specification, the novel single crystal ferrite particles of the present invention are not be produced by the prior art processes. Therefore, the mere teaching of the use of spherical ferrite particles within the claimed particle size, without showing their production process or providing any information with respect to the crystallinity of the ferrite particles, does not teach the presently claimed invention. As such, it is respectfully submitted that the presently claimed invention is patentably distinguishable over all of the references cited by the Examiner.

Further acknowledgement is made of the Examiner's provisional rejection of Claims 1, 3 and 5 under the judicially created doctrine of obviousness-type double patenting over Claims 9-12 of co-pending application Serial No. 10/158 570. As stated in the previous Response to the Patent Office, once the other issues regarding the patentability of the presently claimed invention have been eliminated, the double patenting type rejection will then be dealt with.

Favorable consideration of the present application is respectfully solicited.

Respectfully submitted,

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of Scientific and Technical Terms (3 pages)
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McGRAW-HILL
DICTIONARY OF
SCIENTIFIC AND
TECHNICAL
TERMS
Fifth Edition

polycrystal [MATER] A polycrystalline solid. { ¦päl·i'krist·əl }

polycrystalline [MATER] **1.** Pertaining to a material composed of aggregates of individual crystals. **2.** Characterized by variously oriented crystals. { ¦päl·i'krist·əl·ən }

Polyctenidae [INV ZOO] A family of hemipteran insects in the superfamily Cimicoidea; the individuals are bat ectoparasites which resemble bedbugs but lack eyes and have ctenidia and strong claws. { ˌpäl·ək'ten·əˌdē }

polycyclic [ORG CHEM] A molecule that contains two or more closed atomic rings; can be aromatic (such as DDT), aliphatic (bianthryl), or mixed (dicarbazyl). { ¦päl·i'sī·klik }

polycyclic hydrocarbon *See* polynuclear hydrocarbon. { ¦päl·i'sī·klik 'hī·drəˌkär·bən }

polycyesis [MED] Multiple pregnancy. { ¦päl·i·sī'ē·səs }

polycystic kidney [MED] A usually hereditary, congenital, and bilateral disease in which a large number of cysts are present on the kidney. { ¦päl·i'sis·tik 'kid·nē }

polycythemia [MED] A condition characterized by an increased number of erythrocytes in the circulation. { ˌpäl·iˌsī'thē·mē·ə }

polycythemia vera [MED] An absolute increase in all blood cells derived from bone marrow, especially erythrocytes. { ˌpäl·iˌsī'thē·mē·ə 'vir·ə }

polydactyly [MED] The condition of having supernumerary fingers or toes. { ˌpäl·i'dak·təl·ē }

polydent [ORG CHEM] Pertaining to a chemical species whose molecules possess more than two reactive sites. Also known as multident. { 'päl·əˌdent }

polydipsia [MED] Excessive thirst. { ˌpäl·i'dip·sē·ə }

polydisperse colloidal system [CHEM] A colloidal system in which the suspended particles have various sizes and shapes. { ¦päl·i·di'spərs kəˌlȯid·əl 'sis·təm }

polydispersity [CHEM] Molecular-weight nonhomogeneity in a polymer system; that is, there is some molecular-weight distribution throughout the body of the polymer. { ¦päl·i·di'spər·səd·ē }

Polydolopidae [PALEON] A Cenozoic family of rodentlike marsupial mammals. { ˌpäl·i·dəˈläp·əˌdē }

polydymite [MINERAL] Ni_3S_4 A mineral of the linnaeite group consisting of nickel sulfide. { pəˈlid·əˌmīt }

polyelectrolyte [ORG CHEM] A natural or synthetic electrolyte with high molecular weight, such as proteins, polysaccharides, and alkyl addition products of polyvinyl pyridine; can be a weak or strong electrolyte; when dissociated in solution, it does not give uniform distribution of positive and negative ions (the ions of one sign are bound to the polymer chain while the ions of the other sign diffuse through the solution). { ¦päl·ē·əˈlek·trəˌlīt }

polyembryony [ZOO] A form of sexual reproduction in which two or more offspring are derived from a single egg. { ¦päl·ēˌim'brī·ə·nē }

polyene [ORG CHEM] Compound containing many double bonds, such as the carotenoids. { 'päl·ēˌēn }

polyester fiber [TEXT] A fiber filament made from a material that is 85% or more thermoplastic polyester resin. { 'päl·ēˌes·tər 'fī·bər }

polyester film [MATER] Thin film made of polyester resin; used for packaging food and other products. { 'päl·ēˌes·tər 'film }

polyester laminate [MATER] Glass fabric or fiber mat impregnated with a polyester resin slurry, and cured; used to make sheets, bars, and structural shapes. { 'päl·ēˌes·tər 'lam·ə·nət }

polyester-reinforced urethane [MATER] A poromeric material which may have a urethane impregnation or a silicone coating; used for shoe uppers and as a substitute for industrial leathers. { 'päl·ēˌes·tər ˌrē·inˌfȯrst 'yůr·əˌthān }

polyester resin [ORG CHEM] A thermosetting or thermoplastic synthetic resin made by esterification of polybasic organic acids with polyhydric acids; examples are Dacron and Mylar; the resin has high strength and excellent resistance to moisture and chemicals when cured. { 'päl·ēˌes·tər 'rez·ən }

polyester rubber *See* polyurethane rubber. { 'päl·ēˌes·tər 'rəb·ər }

polyestrous [PHYSIO] Having several periods of estrus in a year. { ¦päl·ē'es·trəs }

polyether [ORG CHEM] Any compound whose molecular structure contains linked ethers, R—O—R′, where R and R′ represent functional groups. { 'päl·ēˌē·thər }

polyether resin [ORG CHEM] Any member of a large group of thermoplastic or thermosetting polymers that contain the typical polyether linkages in the polymer chain. { 'päl·ēˌē·thər 'rez·ən }

polyethylene *See* ethylene resin. { ¦päl·ē'eth·əˌlēn }

polyethylene glycol [ORG CHEM] Any of a family of colorless, water-soluble liquids with molecular weights from 200 to 6000; soluble also in aromatic hydrocarbons (not aliphatics) and many organic solvents; used to make emulsifying agents and detergents, and as plasticizers, humectants, and water-soluble textile lubricants. { ¦päl·ē'eth·əˌlēn 'glīˌkȯl }

polyethylene glycol distearate *See* polyglycol distearate. { ¦päl·ē'eth·əˌlēn 'glīˌkȯl dī'stirˌāt }

polyethylene resin *See* ethylene resin. { ¦päl·ē'eth·əˌlēn 'rez·ən }

polyethylene terephthalate [ORG CHEM] A thermoplastic polyester resin made from ethylene glycol and terephthalic acid; melts at 265°C; used to make films or fibers. Abbreviated PET. { ¦päl·ē'eth·əˌlēn ˌter·ə'thaˌlāt }

polyforming [CHEM ENG] A noncatalytic, petroleum-refinery process charging C_3 and C_4 gases with naphtha or gas oil at high temperature to produce high-quality gasoline and fuel oil; mostly replaced by catalytic reforming; the product is known as polyformdistillate. { 'päl·ēˌfȯrm·iŋ }

Polygalaceae [BOT] A family of dicotyledonous plants in the order Polygalales distinguished by having a bicarpellate pistil and monadelphous stamens. { ˌpäl·i·gəˈlās·ēˌē }

polygalacturonase [BIOCHEM] An enzyme that catalyzes the hydrolysis of glycosidic linkage of polymerized galacturonic acids. { ˌpäl·iˌgaˌlak'tůr·əˌnās }

Polygalales [BOT] An order of dicotyledonous plants in the subclass Rosidae characterized by its simple leaves and usually irregular, hypogynous flowers. { ˌpäl·i·gəˈlā·lēz }

polygamous [BOT] Having both perfect and imperfect flowers on the same plant. [VERT ZOO] Having more than one mate at one time. { pəˈlig·ə·məs }

polygen *See* polyvalent. { 'päl·i·jən }

polygene [GEN] One of a group of nonallelic genes that collectively control a quantitative character. [GEOL] An igneous rock composed of two or more minerals. Also known as polymere. { 'päl·iˌjēn }

polygenetic [GEOL] **1.** Resulting from more than one process of formation or derived from more than one source, or originating or developing at various places and times. **2.** Consisting of more than one type of material, or having a heterogeneous composition. Also known as polygenic. { ¦päl·i·jəˈned·ik }

polygenic *See* polygenetic. { ¦päl·i¦jen·ik }

polygeosyncline [GEOL] A geosynclinal-geoanticlinal belt that lies along the continental margin and receives sediments from a borderland on its oceanic side. { ¦päl·i¦jē·ōˈsinˌklīn }

polyglycol [ORG CHEM] A dihydroxy ether derived from the dehydration (removal of a water molecule) of two or more glycol molecules; an example is diethylene glycol, CH_2OHCH_2O-CH_2CH_2OH. { 'päl·iˌglīˌkȯl }

polyglycol distearate [ORG CHEM] $(C_{17}H_{35})_2CO_2CO$-$(CH_2CH_2O)_x$ An off-white, soft solid with a melting point of 43°C; soluble in chlorinated solvents, acetone, and light esters; used as a resin plasticizer. Also known as polyethylene glycol distearate. { 'päl·iˌglīˌkȯl dī'stirˌāt }

Polygnathidae [PALEON] A family of Middle Silurian to Cretaceous conodonts in the suborder Conodontiformes, having platforms with small pitlike attachment scars. { ˌpal·igˈnath·əˌdē }

polygon [MATH] A figure in the plane given by points $p_1, p_2, \ldots, p_n$ and line segments $p_1p_2, p_2p_3, \ldots, p_{n-1}p_n, p_np_1$. { 'päl·iˌgän }

Polygonaceae [BOT] The single family of the order Polygonales. { pəˌligəˈnās·ēˌē }

Polygonales [BOT] An order of dicotyledonous plants in the subclass Caryophyllidae characterized by well-developed endosperm, a unilocular ovary, and often trimerous flowers. { pəˌligəˈnāˌlēz }

polygonal ground [GEOL] A ground surface consisting of polygonal arrangements of rock, soil, and vegetation formed on a level or gently sloping surface by frost action. Also known as cellular soil. { pəˈligənəl 'graůnd }

polygonal karst [GEOL] A karst pattern that is characteristic of tropical types such as cone karsts, with the surface completely divided into a polygonal network. { pəˈligənəl 'kärst }

polygonal method [MIN ENG] A method of estimating ore

POLYGNATHIDAE

Toothlike shapes of polygnaths show their platformlike appearance. *(a) Ancyrodella. (b) Palmatolepis. (c) Polygnathus.*

POLYGONALES

Polygonum hydropiper, eastern American smartweed. *(Photograph by A. W. Ambler, from National Audubon Society)*

singing [CONT SYS] An undesired, self-sustained oscillation in a system or component, at a frequency in or above the passband of the system or component; generally due to excessive positive feedback. { 'siŋ·iŋ }

singing margin [CONT SYS] The difference in level, usually expressed in decibels, between the singing point and the operating gain of a system or component. { 'siŋ·iŋ ˌmär·jən }

singing point [CONT SYS] The minimum value of gain of a system or component that will result in singing. { 'siŋ·iŋ ˌpȯint }

singing sand *See* sounding sand. { 'siŋ·iŋ ˌsand }

singing-stovepipe effect [ELEC] Reception and reproduction of radio signals by ordinary pieces of metal in contact with each other, such as sections of stovepipe; it occurs when rusty bolts, faulty welds, or mechanically loose connections within strong radiated fields near transmitters produce intermodulation interference; the mechanically poor connections serve as nonlinear diodes. { 'siŋ·iŋ ˌstōvˌpīp iˌfekt }

single acting [MECH ENG] Acting in one direction only, as a single-acting plunger, or a single-acting engine (admitting the working fluid on one side of the piston only). { 'siŋ·gəl 'akt·iŋ }

single action [ORD] A method of fire in some revolvers and shoulder arms in which the hammer must be cocked by hand, in contrast to double action in which a single pull of the trigger both cocks and fires the weapon. { 'siŋ·gəl 'ak·shən }

single-action press [MECH ENG] A press having a single slide. { 'siŋ·gəl ˌak·shən 'pres }

single-address instruction *See* one-address instruction. { 'siŋ·gəl ˌad,res in'strək·shən }

single-axis gyroscope [ENG] A gyroscope suspended in just one gimbal whose bearings form its output axis; an example is a rate gyroscope. { 'siŋ·gəl ˌak·səs 'jī·rəˌskōp }

single-base powder [MATER] An explosive or propellant powder in which nitrocellulose is the only active ingredient. { 'siŋ·gəl ˌbās 'paůd·ər }

single-bevel groove weld [MET] A groove weld in which one member has a joint edge beveled from one side. { 'siŋ·gəl ˌbev·əl 'grüv ˌweld }

single-blind technique [STAT] An experimental procedure in which the experimenters but not the subjects know the makeup of the test and control groups during the actual course of the experiments. { 'siŋ·gəl ˌblīnd tek'nēk }

single-block brake [MECH ENG] A friction brake consisting of a short block fitted to the contour of a wheel or drum and pressed up against the surface by means of a lever on a fulcrum; used on railroad cars. { 'siŋ·gəl ˌbläk 'brāk }

single-board computer [COMPUT SCI] A computer consisting of a processor and memory on a single printed circuit board. { 'siŋ·gəl ˌbȯrd kəm'pyüd·ər }

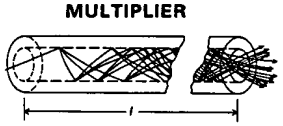
single bus [ELEC] A substation switching arrangement that involves one common bus for all connections and one breaker per connection. { 'siŋ·gəl 'bəs }

single-button carbon microphone [ENG ACOUS] Microphone having a carbon-filled buttonlike container on only one side of its flexible diaphragm. { 'siŋ·gəl ˌbət·ən 'kär·bən 'mī·krəˌfōn }

single-carrier theory [SOLID STATE] A theory of the behavior of a rectifying barrier which assumes that conduction is due to the motion of carriers of only one type; it can be applied to the contact between a metal and a semiconductor. { 'siŋ·gəl ˌkar·ē·ər 'thē·ə·rē }

single-channel multiplier [ELECTR] A type of photomultiplier tube in which electrons travel down a cylindrical channel coated on the inside with a resistive secondary-emitting layer, and gain is achieved by multiple electron impacts on the inner surface as the electrons are directed down the channel by an applied voltage over the length of the channel. { 'siŋ·gəl ˌchan·əl 'məl·təˌplī·ər }

SINGLE-CHANNEL MULTIPLIER



inuous-channel multiplier
ture.

single-channel simplex [COMMUN] Simplex operation that provides nonsimultaneous radio communications between stations using the same frequency channel. { 'siŋ·gəl ˌchan·əl 'simˌpleks }

single-chip computer [COMPUT SCI] A computer whose processor consists of a single integrated circuit. { 'siŋ·gəl ˌchip kəm'pyüd·ər }

single-column punch [COMPUT SCI] A system of coding whereby any one of the numerical values 0 to 11 can be represented by a single punch in a column. { 'siŋ·gəl ˌkäl·əm 'pənch }

single completion [PETRO ENG] An oil or gas well drilled to produce fluids from a single reservoir level or zone, and using a single tubing string. { 'siŋ·gəl kəm'plē·shən }

single-compound explosive [MATER] Explosive composed of a single chemical compound. { 'siŋ·gəl ˌkäm,paůnd ik'splō·siv }

single crystal [CRYSTAL] A crystal, usually grown artificially, in which all parts have the same crystallographic orientation. { 'siŋ·gəl 'krist·əl }

single-current transmission [COMMUN] Telegraph transmission in which a current flows, in only one direction, during marking intervals, and no current flows during spacing intervals. { 'siŋ·gəl ˌkə·rənt tranz'mish·ən }

single cusp of the first kind *See* keratoid cusp. { 'siŋ·gəl ˌkəsp əv thə 'fərst ˌkīnd }

single cusp of the second kind *See* ramphoid cusp. { 'siŋ·gəl ˌkəsp əv thə 'sek·ənd ˌkīnd }

single-cut file [DES ENG] A file with one set of parallel teeth, extending diagonally across the face of the file. { 'siŋ·gəl ˌkət 'fīl }

single-cycle mountain [GEOL] A fold mountain that has been destroyed without reelevation of any of its important parts. { 'siŋ·gəl ˌsī·kəl 'maůnt·ən }

single-degree-of-freedom gyro [MECH] A gyro the spin reference axis of which is free to rotate about only one of the orthogonal axes, such as the input or output axis. { 'siŋ·gəl di,grē əv ˌfrē·dəm 'jī·rō }

single density [COMPUT SCI] Property of computer storage which holds the standard amount of data per unit of storage space. { 'siŋ·gəl 'den·səd·ē }

single-drift flight [NAV] A flight made by using a single drift correction angle based upon net drift between the point of departure and the point of destination. { 'siŋ·gəl ˌdrift ˌflīt }

single-edged push-pull amplifier circuit [ELECTR] Amplifier circuit having two transmission paths designed to operate in a complementary manner and connected to provide a single unbalanced output without the use of an output transformer. { 'siŋ·gəl ˌejd ˌpůsh ˌpůl 'am·pləˌfī·ər ˌsər·kət }

single-effect evaporation [CHEM ENG] An evaporation process completed entirely in one vessel or by means of a single heating unit. { 'siŋ·gəl iˌfekt iˌvap·ə'rā·shən }

single-end amplifier [ELECTR] Amplifier stage which normally employs only one tube or semiconductor or, if more than one tube or semiconductor is used, they are connected in parallel so that operation is asymmetric with respect to ground. Also known as single-sided amplifier. { 'siŋ·gəl ˌend 'am·pləˌfī·ər }

single-ended [ELEC] Unbalanced, as when one side of a transmission line or circuit is grounded. { 'siŋ·gəl 'end·əd }

single-ended ferry [NAV ARCH] A ferry vessel that has a normal hull form with propellers and rudders at the stern, so that it can proceed in only one direction without turning. { 'siŋ·gəl ˌend·əd 'fer·ē }

single-ended Q machine [PL PHYS] A Q machine in which the plasma column is generated at a hot tungsten plate at one end and terminated by a cold metal plate at the other. { 'siŋ·gəl ˌen·dəd 'kyü məˌshēn }

single-ended signal [ELECTR] A circuit signal that is the voltage difference between two nodes, one of which can be defined as being at ground or reference voltage. { 'siŋ·gəl ˌen·dəd 'sig·nəl }

single-ended spread [ENG] A spread of geophones in which the shot point is located at one end of the arrangement. { 'siŋ·gəl ˌend·əd 'spred }

single-event upset [ELECTR] A change in the state of a logic device from 0 to 1 or vice versa, as the result of the passage of a single cosmic ray. { ˌsiŋ·gəl i'vent 'əpˌset }

single-frequency duplex [COMMUN] Duplex carrier communications that provide communications in opposite directions, but not simultaneously, over a single-frequency carrier channel, the transfer between transmitting and receiving conditions being automatically controlled by the voices of the communicating parties. { 'siŋ·gəl 'frē·kwən·sē 'dü,pleks }

single-frequency simplex [COMMUN] Single-frequency carrier communications in which manual rather than automatic switching is used to change over from transmission to reception. { 'siŋ·gəl 'frē·kwən·sē 'simˌpleks }

single-gun color tube [ELECTR] A color television picture